REMARKS

Reconsideration and allowance of this application are respectfully requested in light of the above amendments and the following remarks.

Claims 1-31 are pending in the application. Claims 1, 3-11, 13-15, 17, 19-21, 23-25, 27, 29, and 30 have been amended and new claim 31 has been added herein. Favorable reconsideration of this case is respectfully requested.

In response to paragraph one of the Office Action, corrected formal drawings will be submitted upon receipt of a notice of allowance.

Claims 1-5, 7, 9-25, 27, 29, and 30 have been rejected under 25 USC §102(b) as being anticipated by Quick, Jr. (US 5,673,259). Claims 6, 8, 16, 18, 26, and 28 have been rejected under 35 USC §103(a) as being unpatentable over Quick in view of TIA/EIA/IS-95-A. These rejections are respectfully traversed.

The Applicant submits that Quick and TIA/EIA/IS-95-A disclose a way of providing mobile stations with random access to a communication channel of the base station. A mobile station gains access to the communication channel by sending an access request to the base station via an access channel. Channel assignments are communicated from the base station to the mobile station in response to the access request via a paging channel, with the

assistance of a pilot channel. The access channel, paging channel, and pilot channel are multiplexed for CDMA-type communication and are reserved and dedicated to the above-described purposes. The access, paging, and pilot channels may not be dynamically reconfigured for other purposes. For example, the access channel may not be dynamically reconfigured to operate as the paging channel or the pilot channel. Moreover, the access, paging, and pilot channels are centrally controlled by the base station.

In the presently claimed invention, the mobile stations request random access to a communication channel using a TDMA (time division) time slot provided in each of the operational uplink channels (claims 1, 11 and 21), which may be FDMA-based (frequency division) channels (claim 31). In response to a mobile station's access request, the base station assigns a communication channel to the mobile station through a CAC sequence (claims 8, 18, and 28) carried in a TDMA time slot of the FDMA-based downlink channel (claim 31). Applicant respectfully submits that this scheme is fundamentally different from that disclosed by Quick and TIA/EIA/IS-95-A.

Further, according to the presently claimed invention, multiple requests of communication access are sent to the base station through a distributed protocol. Each mobile station having an access request will send its request via the padding code

contained within the request packet portion of one of the communication channels. Upon receiving the access request packet from this communication channel, the base station will resolve any access request collisions that may have occurred and then assign communication channels to the requesting mobile stations. Each of the communication channels includes data and control (i.e., request packet) portions that are time-division multiplexed into a time slot (claims 1, 11, and 21).

The claims have been amended to better clarify the differences between the invention and the applied references. In view of the above, consideration and allowance are respectfully solicited.

If any issues remain which may best be resolved through a telephone communication, the Examiner is requested to kindly telephone the undersigned at the local Washington, D.C. telephone number listed below.

Respectfully submitted,

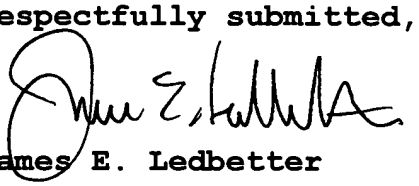

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EXHIBIT I

Kindly amend the claims as follows:

1. (Amended) A multi-channel communication system for data communication comprising:

a first station;

a plurality of second stations; and

medium access control means for controlling operation of said data communication via one or more [data] time division multiple access (TDMA) up links and [control] TDMA down links between said first station and said second stations, said operation comprising:

transmitting, from said second stations, one or more access request packets to said first station via said one or more [control] TDMA up links, [said one or more request packets including a preamble code and a padding code] each of said one or more access request packets being time-multiplexed with a data part into said one or more TDMA up links, and

transmitting, from said first station, one or more code assignment commands to one or more of said second stations via said one or more [control] TDMA down links[, and

transmitting, based on said one or more code assignment commands, one or more data packets from said one or more of said

second stations to said first station via said one or more data links].

3. (Amended) The system of claim 1, wherein said one or more access request packets comprise a preamble code and a padding code and said padding code comprises a dummy data code and an error detection code for collision detection by said first station.

4. (Amended) The system of claim 1, wherein said one or more access request packets comprise a preamble code and a padding code and said padding code is selected based on a random selection of said preamble code.

5. (Amended) The system of claim 1, wherein said one or more access request packets comprise a preamble code and a padding code and a predetermined number of said preamble codes transmitted by said second stations is processed by said first station.

6. (Amended) The system of claim 1, wherein:

said operation further comprises transmitting, based on said one or more code assignment commands, one or more data packets from said one or more of said second stations to said first station via said one or more TDMA up links; and

said one of said one of more second stations spreads and modulates said data packet by a data scrambling code selected from among scrambling codes s_k where k=0...n, and said data scrambling code is randomly selected as follows:

$$k = j \times m + r$$

where j represents a sequence number that indicates a particular time-offset in a number of time-offsets in a predetermined frame period, m represents a number of said code assignment commands, and r represents a sequence number that indicates in a sequence of said code assignment commands a position of a code assignment command in said sequence which contains a preamble code number i transmitted by said mobile station in said particular time- offset.

7. (Amended) The system of claim 1, wherein said one or more access request packets comprise a preamble code and a padding code and a first one of said second stations performs a random access attempt by transmitting a first one of said one or more access request packets including a preamble code p_i and a padding code encoded by a scrambling code S_i and if said first station correctly receives said preamble code P_i and said padding code without error, said first station sends a code assignment command indicating that said random access attempt of said first one of said second stations is successful.

8. (Amended) The system of claim 7, wherein:

said operation further comprises transmitting, based on said one or more code assignment commands, one or more data packets from said one or more of said second stations to said first station via said one or more TDMA up links; and

said first one of said second stations transmits said preamble code p_i in a j^{th} time offset of a frame and detects among said one or more code assignment commands, a code assignment command containing said preamble code p_i, said first one of said second stations transmits its one of said data packets to said first station while employing a data scrambling code s_k, where s_k is selected via the equation:

$$k = j \times m + r$$

where j represents a sequence number that indicates a particular time-offset in a number of time-offsets in a predetermined period of said frame, m represents a number of said code assignment commands, and r represents a sequence number that indicates in the CAC sequence the position of the CAC which contains the preamble code P_i.

9. (Amended) The system of claim 1, wherein:

said operation further comprises transmitting, based on said one or more code assignment commands, one or more data packets from

said one or more of said second stations to said first station via said one or more TDMA up links; and

if said first station determines that there are greater than m of said access request packets correctly received from said second stations, said first station transmits said code assignment commands to authorize only m of said second stations to transmit said data packets to said first station.

10. (Amended) The system of claim 7, wherein said one or more access request packets comprise a preamble code and a padding code and selection of said scrambling code s_i is determined by said preamble code p_i in accordance with a one-to-one mapping of function $g:P \rightarrow \Psi$:

$$g(p_i)=s_i, i=0...15$$

where P represents the set of all preamble codes and Ψ represents the set of all scrambling codes.

11. (Amended) A multi-channel communication system for data communication comprising:

a first station;

a plurality of second stations; and

medium access control means for controlling operation of said data communication via a plurality of [data] first up links, a

plurality of [forward control] time division multiple access (TDMA) up links, and a single [reverse control] TDMA down link between said first station and said second stations, said operation comprising:

transmitting, from said second stations, one or more access request packets to said first station via said plurality of [forward control] TDMA up links, [each of said one or more request packets including a preamble code and a padding code] each of said one or more access request packets being time-multiplexed with a data part into said plurality of TDMA up links,

transmitting, from said first station, one or more code assignment commands to one or more of said second stations via said [reverse control] TDMA down link, and

transmitting, based on said one or more code assignment commands, one or more data packets from said one or more of said second stations to said first station via said plurality of [data] first up links.

13. (Amended) The system of claim 11, wherein each of said one or more request packets includes a preamble code and a padding code and said padding code comprises a dummy data code and an error detection code for collision detection by said first station.

14. (Amended) The system of claim 11, wherein each of said one or more request packets includes a preamble code and a padding code and said padding code is selected based on a random selection of said preamble code.

15. (Amended) The system of claim 11, wherein each of said one or more request packets includes a preamble code and a padding code and a predetermined number of said preamble codes transmitted by said second stations is processed by said first station.

17. (Amended) The system of claim 11, wherein each of said one or more request packets includes a preamble code and a padding code and a first one of said second stations performs a random access attempt by transmitting a first one of said one or more access request packets including a preamble code p_i and a padding code encoded by a scrambling code S_i and if said first station correctly receives said preamble code P_i and said padding code without error, said first station sends a code assignment command indicating that said random access attempt of said first one of said second stations is successful.

19. (Amended) The system of claim 11, wherein if said first station determines that there are greater than m of said access

request packets correctly received from said second stations, said first station transmits said code assignment commands to authorize only m of said second stations to transmit said data packets to said first station.

20. (Amended) The system of claim 17, wherein each of said one or more request packets includes a preamble code and a padding code and selection of said scrambling code s_i is determined by said preamble code p_i in accordance with a one-to-one mapping of function $g:P \rightarrow \Psi$:

$$g(p_i)=s_i, i=0...15$$

where P represents the set of all preamble codes and Ψ represents the set of all scrambling codes.

21. (Amended) A multi-channel communication system for data communication comprising:

a first station;

a plurality of second stations; and

medium access control means for controlling operation of said data communication via a plurality of [data] first up links, a plurality of [reverse control] time division multiple access (TDMA) up links, and a [forward control] TDMA down link between said first station and said second stations, said operation comprising:

transmitting, from said second stations, one or more access request packets to said first station via said plurality of [reverse control] TDMA up links, [each of said one or more request packets including a preamble code and a padding code which is encoded by a random access scrambling code] each of said one or more access request packets being time-multiplexed with a data part into said plurality of TDMA up links,

transmitting, from said first station, one or more code assignment commands encoded by a channelization code to one or more of said second stations via said [forward control] TDMA down link, and

transmitting, based on said one or more code assignment commands, one or more data packets encoded by data scrambling codes from said one or more of said second stations to said first station via said plurality of [data] first up links.

23. (Amended) The system of claim 21, wherein each of said one or more request packets includes a preamble code and a padding code which is encoded by a random access scrambling code and said padding code comprises a dummy data code and an error detection code for collision detection by said first station.

24. (Amended) The system of claim 21, wherein each of said one or more request packets includes a preamble code and a padding code which is encoded by a random access scrambling code and said random access scrambling code is selected based on a random selection of said preamble code.

25. (Amended) The system of claim 21, wherein each of said one or more request packets includes a preamble code and a padding code which is encoded by a random access scrambling code and a predetermined number of said preamble codes transmitted by said second stations is processed by said first station.

27. (Amended) The system of claim 21, wherein each of said one or more request packets includes a preamble code and a padding code which is encoded by a random access scrambling code and a first one of said second stations performs a random access attempt by transmitting a first one of said one or more access request packets including a preamble code p_i and a padding code encoded by a scrambling code S_i and if said first station correctly receives said preamble code P_i and said padding code without error, said first station sends a code assignment command indicating that said random access attempt of said first one of said second stations is successful.

29. (Amended) The system of claim 21, wherein if said first station determines that there are greater than m of said access request packets correctly received from said second stations, said first station transmits said code assignment commands to authorize only m of said second stations to transmit said data packets to said first station.

30. (Amended) The system of claim 27, wherein each of said one or more request packets includes a preamble code and a padding code which is encoded by a random access scrambling code and selection of said scrambling code s_i is determined by said preamble code p_i in accordance with a one-to-one mapping of function $g:P \rightarrow \Psi$:

$$g(p_i)=s_i, i=0...15$$

where P represents the set of all preamble codes and Ψ represents the set of all scrambling codes.